

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | |
|--|---|
| Applicant's or agent's file reference 43283/X373 | FOR FURTHER ACTION <div style="float: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div> |
| International application No. PCT/NZ2005/000058 | <div style="display: inline-block; width: 60%;">International filing date (<i>day/month/year</i>) 29 March 2005</div> <div style="display: inline-block; width: 40%; vertical-align: top;">(Earliest) Priority Date (<i>day/month/year</i>) 25 March 2004</div> |
| Applicant SENSORTEC LIMITED et al | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **5** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II).

3. ☒ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

Sampling single phase from multiphase fluid

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. **6**

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The characterising features of claims 1 and 9 are different.

Claim 1 characterises the device by operating the fluid controller to allow sample extraction after minimum volume detection.

Claim 9 characterises the device by the use of two distinct sensors capable of detecting different characteristics of the fluid.

I do not consider there to be a shared "technical relationship" between the claims if these features are what characterise the inventions.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2005/000058

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: G01N 1/10, G01F 23/22, A01J 7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI -IPC G01N, G01F, A01J and keywords (fluid, froth, well, control, level, vacuum, flow and similar terms); USPTO and (milk, flow, sample, control, valve, froth, level and similar terms); Espace and (milk, sample, foam and similar terms)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| P,A | Derwent Abstract Accession No. 2004-716772/70, Class P13, RU 2236120 C1 (AGRIC ELECTRIF RES INST) 20 September 2004 See abstract | |
| A | US 5052341 A (WOOLFORD et al) 1 October 1991 See abstract, fig 1 and column 4 | |
| P,A | WO 2004/111613 A2 (THE TECHNOLOGY PARTNERSHIP PLC) 23 December 2004 See fig 3B and page 8 line 6 to page 9 line 9 | |

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"E" earlier application or patent but published on or after the international filing date

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"O" document referring to an oral disclosure, use, exhibition or other means

"&" document member of the same patent family

"P" document published prior to the international filing date but later than the priority date claimed

Date of the actual completion of the international search

27 June 2005

Date of mailing of the international search report

06 JUL 2005

Name and mailing address of the ISA/AU

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Authorized officer

STEPHEN CLARK

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INTERNATIONAL SEARCH REPORT

International application No.

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| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|---|--|-----------------------|
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| A | WO 1991/002948 A1 (THE SECRETARY OF STATE FOR TRADE AND INDUSTRY IN HER BRITANNIC MAJESTY'S GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND) 7 March 1991 See abstract and fig 1 | |
| A | Derwent Abstract Accession No. D6717B/17, Class Q39, DE 2746589 A (DUTTMANN K) 19 April 1979 See English abstract | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/NZ2005/000058

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | | | Patent Family Member | | | | |
|---|------------|------|----------------------|----|----------|----|---------|
| RU | 2236120 | NONE | | | | | |
| US | 5052341 | AU | 62321/90 | AU | 64631/86 | CA | 1274210 |
| | | EP | 0222574 | JP | 63000240 | NZ | 212889 |
| | | NZ | 217300 | NZ | 217301 | NZ | 227457 |
| WO | 2004111613 | NONE | | | | | |
| WO | 9102948 | NONE | | | | | |
| DE | 2746589 | NONE | | | | | |
| Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001. | | | | | | | |
| END OF ANNEX | | | | | | | |

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

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|---|
| To: James & Wells PO Box 2201 Christchurch NEW ZEALAND |
|---|

| | |
|-------------------------------------|--------------------|
| Date of mailing (day/month/year) | 06 JUL 2005 |
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|--|
| Applicant's or agent's file reference 43283/X373 |
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| FOR FURTHER ACTION See paragraph 2 below |
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|---|--|--|
| International application No. PCT/NZ2005/000058 | International filing date (day/month/year) 29 March 2005 | Priority date (day/month/year) 25 March 2004 |
|---|--|--|

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|--|
| International Patent Classification (IPC) or both national classification and IPC Int. Cl. ⁷ G01N 1/10, G01F 23/22, A01J 7/00 |
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|---|
| Applicant SENSORTEC LIMITED et al |
|---|

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input checked="" type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

| | |
|--|--|
| Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929 | Authorized Officer STEPHEN CLARK Telephone No. (02) 6283 2781 |
|--|--|

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/NZ2005/000058

| Box No. I | Basis of the opinion |
|------------------|-----------------------------|
|------------------|-----------------------------|

With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
- ☐ paid additional fees
 - ☐ paid additional fees under protest
 - ☐ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:

The characterising features of claims 1 and 9 are different.

Claim 1 characterises the device by operating the fluid controller to allow sample extraction after minimum volume detection.

Claim 9 characterises the device by the use of two distinct sensors capable of detecting different characteristics of the fluid.

I do not consider there to be a shared "technical relationship" between the claims if these features are what characterise the inventions.

4. Consequently, this opinion has been established in respect of the following parts of the international application:
- ☒ all parts
 - ☐ the parts relating to claims Nos.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|-----|
| Novelty (N) | Claims 1-57 | YES |
| | Claims | NO |
| Inventive step (IS) | Claims 1-57 | YES |
| | Claims | NO |
| Industrial applicability (IA) | Claims 1-57 | YES |
| | Claims | NO |

2. Citations and explanations:

1. RU 2236120
2. US 5052341
3. WO 2004/111613
4. WO 1991/002948
5. DE 2746589

Novelty (N), Inventive Step (IS) Claims 1-57

None of the citations alone, or in obvious combination, disclose all of the features of any of the claims.

In particular, the separation of a single phase sample from the multiphase fluid into a well with detectors to sense a minimum volume of the single phase fluid and actuate an extraction valve was not found.

Citation 1 appears to have level sensors and makes reference to metering with reduced foam, but there is not enough information to determine that it is for the purpose of sampling, rather than purely foamless milk flow.

Citation 2 is similar to citation 1 in that a level detector indicates when a single phase fluid (milk without foam) is found in the chamber, but there is enough information to show that it is for the purpose of milk flow without foam, rather than sampling.

The citations show valve opening dependent on detectors and more than one detector for foam detection, but none of them have all of the features for the purpose of sampling from a flow line.